

ABSTRACT**RECOVERY OF ETHYLENE AND PROPYLENE
FROM A METHANOL TO OLEFIN REACTION SYSTEM**

The present invention provides new highly-efficient separation processes and systems for separating polymerization-grade ethylene and propylene from an initial effluent stream comprising ethane, ethylene, propylene, dimethyl ether, and one or more of propane, acetylene, methyl acetylene, propadiene, methane, hydrogen, carbon monoxide, carbon dioxide and C₄+ components. In one embodiment, the initial effluent stream is provided from a methanol-to-olefin reaction system. It has been discovered that an efficient separation of these components is realized when DME is partially removed in a first separation step comprising methanol and water washing steps, followed by separation of the remaining components in additional separation steps.